



Marine & Offshore

Certificate number: 02857/H0 BV

File number: ACM 159/17

Product code: 0240I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

GALI INTERNACIONAL S.A.

Sentmenat (Barcelona) - SPAIN

for the type of product

INTERNAL COMBUSTION ENGINE STARTING DEVICES

A Series & S Series

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 21 Nov 2023

For Bureau Veritas Marine & Offshore,

At BV BARCELONA, on 21 Nov 2018,

Sergio Julian LOPEZ VIDAL



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

AIR STARTERS for Diesel Engines **A series:**

- | | |
|--------------|--------------|
| - Serie A 15 | - Serie A 45 |
| - Serie A 17 | - Serie A 47 |
| - Serie A 25 | - Serie A 48 |
| - Serie A 27 | - Serie A47Z |

AIR STARTERS for Diesel Engines **S Series:**

- ACM159/701/2 Model S30
- ACM159/701/3 Model S38

Composed of an air admission valve, a volumetric gear pneumatic motor driving an internally geared crown and the output shaft for the engagement to the flywheel gear of the engine. The air exhaust is fitted with a silencer.

2. DOCUMENTS AND DRAWINGS:

AIR STARTERS for Diesel Engines **A series:**

Documents:	Arrancador Air Stater A48 Expediente tecnico de construccion A27-R/A27-L
Specifications:	B.29.985 - 1984 B.29.983 - 1984 B.23.828 - 1980
Drawings:	A155115000a A175117000 A475147000.003c
	A15: 5115000
	A17: 5117000
	A25: 5125500
	A27: 5127000
	S30: 5130M6A92
	S38: 51386000
	A45: 5145000
	A47: 5147000.002
	A47Z: 5147000.002
	A48: 5148000

AIR STARTERS for Diesel Engines **S Series:**

Manual de instrucciones S30 Measures and technical data air stater S30: S30-PTC

Manual de instrucciones S38 Measures and technical data air stater S38: S38-PTC

3. TEST REPORTS:

Nil.

4. APPLICATION / LIMITATION:

AIR STARTERS for Diesel Engines **A series:**

SERIES	Maximum Air Pressure (bar)	Maximum Rating	Maximum Torque (Nm)
A 15	30	15 kW at 4000 rpm	66
A 17	40	16.5 kW at 4000 rpm	88
A 25	30	25 kW at 3500 rpm	133
A 27	40	30 kW at 2 800 rpm	188
A 45 / A 47 / A47Z	30	66 kW at 2300 rpm	540
A 48	40	95 kW at 2200 rpm	925

The Size of the air starter is to be in accordance with the size of the diesel engine, according to the instructions of the manufacturer.

AIR STARTERS for Diesel Engines S Series:

SERIES	Maximum Air Pressure (bar)	Maximum Power	Maximum Torque (Nm)
S30	30	41.5 kW at 2500 rpm	305
S38	30	42 kW at 2500 rpm	360

The Size of the air starter is to be in accordance with the size of the diesel engine, according to the instructions of the manufacturer.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The AIR STARTERS for Diesel Engines, series A & series S are to be supplied by **GALI INTERNACIONAL S.A.** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

6. MARKING OF PRODUCT:

- Serial number
- Size
- Rating
- Design Air Pressure
- Bureau Veritas Marks

7. OTHERS:

7.1 - This approval is given with the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 02857/G1 BV & N°34173/G1 issued on 07 Apr. 2015 by the Society.

*** END OF CERTIFICATE ***